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Yasuhito Yuasa

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EXAMINER

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

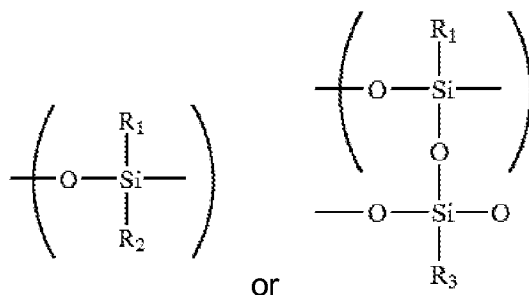
DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1, 4-5, 7, 12-13, and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over US PGPub 2003/0091923, Kobayashi et al. in view of 2002/0064724, Nakamura et al. and US PGPub 2002/0086229, Yuasa et al.
3. Kobayashi discloses a two-component developer comprising a carrier and a polymer toner (PP 0018), wherein the carrier is a resin-coated carrier (PP 0025), wherein the coating resin may comprise a cross-linkable fluorine-modified silicone resin (PP 0030-0033), wherein the silicone resin may be coupled with an aminosilane coupling agent, which is present in an amount of about 23% by weight (PP 0100). The toner may comprise a polymer (binder), a colorant, and surface active agents (PP 0045), and a fixability improving agent (PP 0046) such as carnauba wax, polypropylene wax, and polyethylene wax (PP 0057), wherein the surface active agents may be present in an amount of 0.01 to 10% by weight (PP 0054). The developer may be 5% by weight of the toner and 95% by weight of the carrier (PP 0079). The fluorine-

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modified silicone resin may be obtained hydrolyzing a polyorganosiloxane having the formula:



wherein R_1 , R_2 , and R_3 may each be a hydrogen, a halogen, a hydroxyl group, a methoxy group, or an alkyl group with a perfluoroalkyl-containing organosilicone compound, having the formula $\text{CF}_3\text{CH}_2\text{CH}_2\text{Si}(\text{OCH}_3)_3$ (PP 0031-0033). Kobayashi fails to teach the ratio of the perfluoroalkyl-containing organosilicone compound to the polyorganosiloxane compound and the toner of the instant claims. Nakamura discloses that cure-type fluorine-modified silicone resins useful in carriers may comprise 15% of a trifluoropropyl group. Yuasa discloses a two-component developer comprising a toner comprising a additive, a wax, and a binding resin (PP 0013) and a carrier having a core and a coating resin (PP 0056) wherein the wax is an ester wax having an iodine value of less than 25 and a saponification value of 30-300 (PP 0021) such as a carnauba wax, a polyethylene wax, polypropylene wax, candelilla wax, Japan wax, or rice wax (PP 0125), or a derivative of glycol fatty acid esters or sorbitan fatty acid esters (PP 0100). The ester based waxes serve as a fixing assistant for improving the fixability (PP 0095). The toner has an inorganic fine powder (PP 0037) wherein the powder has an average particle diameter of 5 to 100 nm (PP 0041) and is present in an amount of .1-10 % (PP 0042). It would have been obvious to one of ordinary skill in the art at the time of the

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invention to use the toner of Yuasa in the developer of Kobayashi because it is a known toner used in developers, and is similar to the toner of Kobayashi, so therefore one of ordinary skill in the art would have a reasonable expectation of success in substituting the toners, and to use the ratio of the perfluoroalkyl-containing organosilicone compound to the polyorganosiloxane compound of Nakamura, 15%, in the fluorine-modified silicone resin of Kobayashi because Nakamura teaches that it is a known, workable ratio. Kobayashi, Nakamura, and Yuasa do not disclose the molecular weight distribution of the wax, because the wax is the same wax used in a similar embodiment, it would be reasonable to conclude that the wax would have a similar molecular weight distribution.

4. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over US PGPub 2003/0091923, Kobayashi et al. in view of 2002/0064724, Nakamura et al. and US PGPub 2002/0086229, Yuasa et al. as applied to claim 1 above, and further in view of US PGPub 2003/0152856, Mizoe et al. Kobayashi, Nakamura, and Yuasa disclose the developer of claim 1 as discussed above, but fail to teach the preparation of the toner. Mizoe discloses a toner comprising a binder resin, colorant, and an additive (PP 0064) and a Fischer-Tropsche wax (PP 0192) wherein the wax has a DCS heat-absorption main peak of 60-140°C and an acid value of 50 mgKOH/g (PP 0194) which is a block copolymer of brassidic acid, a long-chain alkyl alcohol, and a hydrocarbon wax (PP 0192). The toner may be used in a two-component developer (PP 0362-0367). The toner has an inorganic fine powder (PP 0038) that has an

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average size of 4-80 nm in an amount of 0.1-8% (PP 0140). The wax of Mizoe is a release agent (PP 0192). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the toner of Mizoe in the developer of Kobayashi and Yuasa because it is a known toner used in developers, and is similar to the toner of Kobayashi and Yuasa, so therefore one of ordinary skill in the art would have a reasonable expectation of success in substituting the toners.

5. Claims 6 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over US PGPub 2003/0091923, Kobayashi et al. in view of 2002/0064724, Nakamura et al. and US PGPub 2002/0086229, Yuasa et al. as applied to claim 1 above, and further in view of US Patent 6117607, Shimizu et al. Kobayashi, Nakamura, and Yuasa disclose the toner of claim 1 as discussed above, but fail to teach the preparation of the toner. Shimizu discloses a toner comprising positively chargeable and negatively chargeable inorganic fine particles (column 2, lines 55-67), wherein the toner may be used in a two-component developer (column 1, lines 33-40). Shimizu teaches the inorganic fine powders may have a weight ratio of 50/50 to 10/90 of positively charged inorganic powders to negatively charged fine powders (column 3, lines 25-33) wherein the total makes about 1.3 wt% of the toner (table 2, column 14, lines 15-35) which would make the amounts of the individual inorganic powders substantially similar to those in the instant application. The inorganic powders are broken into multiple groups depending on size, the first group has an average size of 30-120nm and the second group is less than 20nm (column 3, lines 34-39). Shimizu does not discuss the ignition

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loss of the inorganic fine powders, but since it is a similar product in a similar embodiment, it is reasonable to conclude that the ignition losses would be substantially similar to that of the instant application. The multiple inorganic fine particles make it possible to substantially eliminate problems inherent in nonmagnetic development (column 2, lines 55-67). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the toner of Shimizu in the developer of Kobayashi and Yuasa because it is a known toner used in developers, and is similar to the toner of Kobayashi and Yuasa, so therefore one of ordinary skill in the art would have a reasonable expectation of success in substituting the toners.

6. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over US PGPub 2003/0091923, Kobayashi et al. in view of 2002/0064724, Nakamura et al. and US PGPub 2002/0086229, Yuasa et al. as applied to claim 1 above, and further in view of US Patent 6579653, Yuasa et al. Kobayashi, Nakamura, and Yuasa '229 disclose the toner of claim 1 as discussed above, but fail to teach the specific aminosilane coupling agent as described in the instant application. Yuasa '653 discloses an aminosilane coupling agent may be γ -(2-aminoethyl) aminopropylmethyldimethoxysilane (column 26, lines 26-43). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the aminosilane coupling agent of Yuasa '653 as the aminosilane coupling agent of Kobayashi and Yuasa '229 because it is a known aminosilane coupling agent and one would have a reasonable expectation of success in doing so.

Response to Arguments

7. Applicant's arguments, see pages 8-11, filed 12/16/2008, with respect to the rejection(s) of claim(s) 1 and 11-16 under Kobayashi have been fully considered and are persuasive with respect to the particular waxes. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Kobayashi and Yuasa, as discussed above.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rachel L. Burney whose telephone number is (571)272-9802. The examiner can normally be reached on Mon-Thurs: 7:30-6:00 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark F. Huff/
Supervisory Patent Examiner, Art Unit 1795

RLB